

Kids Safety Corner

Welcome to Alcoa Electric's web page
just for kids!

This site will help you learn how to play it safe when it comes to electricity, and let you explore the history of electricity. And, you'll see how Alcoa Electric brings electricity to your home and school each day. Have fun!

Power Safety Tips

The harnessing of electric power has been one of the greatest human achievements. Today we can heat and cool our homes, power medical equipment that saves lives, and learn and communicate on the Internet, all through the use of electricity.

But electricity, when handled improperly, can be very dangerous—even deadly. Both lightning and electricity from power plants demand great respect from kids and adults in order to prevent accidents.

AED wants to help you learn how to stay safe when it comes to electric power. Here are some important tips for preventing injuries from electricity.

Indoors

- Never turn on a light switch or electrical appliance while you are wet or while you are in the bathtub.
- Be careful not to leave electrical cords where people might step on them. Wear and tear on the cord can cause it to become unsafe.
- Check electrical cords for exposed wiring before plugging anything in. If you see a worn-looking cord, point it out to an adult.
- Never put any object other than a plug designed for that purpose into an electrical outlet. If you have questions about whether a plug is safe to use, ask your parent or a teacher.
- Never touch electrical outlets with your fingers or with objects.
- Ask an adult to help you change light bulbs. Always turn lamps and other light fixtures off before changing a bulb.

- In case of an electrical fire at home get out of the house, then call the fire department and an adult.
- Never use water to try to put out an electrical fire—you could be electrocuted.

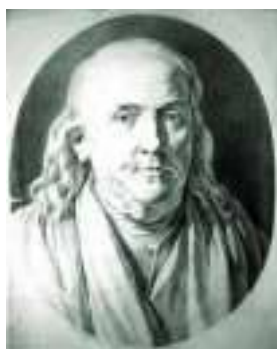
Outdoors

- Never climb utility poles, transmission towers, or fences around electrical plants or substations (which house equipment that reduces high voltage electricity so it can be used by consumers). If you see other people doing these things, tell an adult you trust right away.
- Stay away from areas or buildings marked with signs that read “Danger: High Voltage.”
- If you enjoy climbing trees, avoid trees that are near electrical power lines.
- Never, ever touch an outdoor electrical pole or wire that has fallen to the ground. It could kill you!
- Stay away from and never touch transformers (usually large metal boxes attached to utility poles or on the ground) or substations. They contain high-voltage equipment that can hurt or kill you.
- Come inside during a thunderstorm (or even occasional flashes of lightning with no rain). Many people around the world are struck by lightning each year. Nearly all are badly injured and some are killed.
- Call 911 if you see a person who has been or is being electrocuted. Do not touch the person because they could be carrying the flow of electricity.
- Never swim during storms. As soon as you hear thunder or see lightning, get out of the water.

A History of Electricity in the U.S.

For thousands of years, people all over the world have been fascinated by lightning. Some wondered how people could put that kind of power to practical use. But it wasn't until the 18th Century that the path to the everyday use of electrical power began to take shape.

Maybe you have heard about the famous kite experiment by American Founding Father and inventor [Benjamin Franklin](#). In 1752, to prove that lightning was electrical, he flew a kite during a thunderstorm.



He tied a metal key onto the string and, as he suspected it would, electricity from the storm clouds flowed down the string, which was wet, and he received an electrical shock. Franklin was extremely lucky not to have been seriously hurt during this experiment, but he was excited to have proved his idea.

Throughout the next hundred years, many inventors and scientists tried to find a way to use electrical power to make light. In 1879, the American inventor [Thomas Edison](#) was finally able to produce a reliable, long-lasting electric light bulb in his laboratory.



President Franklin Delano Roosevelt signed the act creating the [Tennessee Valley Authority](#) (TVA) on May 18, 1933.

TVA is a federally-owned corporation in the United States that was created in 1933 to provide navigation, flood control, electricity generation, fertilizer manufacturing, and economic development in the Tennessee River Valley, a region that was particularly hard hit by the Great Depression.

Today the TVA is the nation's largest public power company, providing electric power to nearly 8.5 million customers in the Tennessee Valley. It acts primarily as an electric power wholesaler, selling to 158 retail power distributors and 61 directly served industrial or government customers.

Power comes from dams providing hydroelectric power, fossil-fuel plants, and nuclear power plants. AED is a TVA customer.

For more on the history of Alcoa Electric, [click here](#).

In Concert With the Environment

TVA and Alcoa Electric began this program to encourage children and adults to take care of the environment by saving energy. [In Concert With the Environment®](#) is an award-winning educational effort that introduces young people to the relationships between energy and the environment. Students learn how they and their families can be responsible energy consumers.

Teachers receive numerous benefits from this program, including:

- Materials for each student, including an energy survey and student handbook
- One-day training for teachers
- Teacher's handbook with activities, demonstration slides, quick facts, and other useful materials
- A packet detailing how the program correlates with state education requirements.
- To find out more about In Concert With the Environment and how your school can participate, contact AED Marketing at (865) 380-4766 or email business@cityofalcoa-tn.gov.

Electricity Terms to Know

VOLT - A unit of electromotive force. It is the amount of force required to drive a steady current of one ampere through a resistance of one ohm. Electrical systems of most homes and office have 120 volts.

VOLTAGE OF A CIRCUIT (Electric utility) - The electric pressure of a circuit, measured in volts. Usually a nominal rating, based on the maximum normal effective difference of potential between any two conductors of the circuit.

ELECTRIC UTILITY - Any person or state agency with a monopoly franchise (including any municipality), which sells electric energy to end-use customers; this term includes the Tennessee

valley Authority, but does not include other Federal power marketing agency (from EPAct).

ELECTRICITY - A property of the basic particles of matter. A form of energy having magnetic, radiant and chemical effects. Electric current is created by a flow of charged particles (electrons).

ENERGY - The capacity for doing work. Forms of energy include: thermal, mechanical, electrical and chemical. Energy may be transformed from one form into another.

TRANSFORMER - A device, which through electromagnetic induction but without the use of moving parts, transforms alternating or intermittent electric energy in one circuit into energy of similar type in another circuit, commonly with altered values of voltage and current.

SOLAR ENERGY - Heat and light radiated from the sun.

SUBSTATION - A facility that steps up or steps down the voltage in utility power lines. Voltage is stepped up where power is sent through long-distance transmission lines. It is stepped down where the power is to enter local distribution lines.

FOSSIL FUEL - Oil, coal, natural gas or their by-products. Fuel that was formed in the earth in prehistoric times from remains of living-cell organisms.

NUCLEAR ENERGY - Power obtained by splitting heavy atoms (fission) or joining light atoms (fusion). A nuclear energy plant uses a controlled atomic chain reaction to produce heat. The heat is used to make steam run conventional turbine generators.

HYDROELECTRIC POWER - Electricity produced by falling water that turns a turbine generator. Also referred to as HYDRO.

CIRCUIT - One complete run of a set of electric conductors from a power source to various electrical devices (appliances, lights, etc.) and back to the same power source.

COMBUSTION Burning - Rapid oxidation, with the release of energy in the form of heat and light.

METER - A device for measuring levels and volumes of a customer's gas and electricity use.

TRANSMISSION - Transporting bulk power over long distances.

KILOVOLT (kv) - One-thousand volts (1,000). Distribution lines in residential areas usually are 12 kv (12,000 volts).

KILOWATT (kW) - One thousand (1,000) watts. A unit of measure of the amount of electricity needed to operate given equipment. On a hot summer afternoon a typical home, with central air conditioning and other equipment in use, might have a demand of four kW each hour.

KILOWATT-HOUR (kWh) -- The most commonly-used unit of measure telling the amount of electricity consumed over time. It means one kilowatt

THERMOSTAT - An automatic control device designed to be responsive to temperature and typically used to maintain set temperatures by cycling the HVAC system.

EDISON, THOMAS ALVA - The "father" of the American energy industry, Thomas Edison was an American inventor who was born in 1847 and died in 1931. He patented a total of 1,093 inventions - more than any other person in American history. Among the most important were the incandescent electric light bulb (1879), the phonograph (1877) and the movie projector (1893).

CONDUCTION - The transfer of heat energy through a material (solid, liquid or gas) by the motion of adjacent atoms and molecules without gross displacement of the particles.

CONDUCTIVITY (k) - The quantity of heat that will flow through one square foot of homogeneous material, one inch thick, in one hour, when there is a temperature difference of one degree

Fahrenheit between its surfaces.